

Listing of Claims

- 1 1. (Original) A caching server comprising:
 - 2 an answer cache configured to access answer information through a flat data
 - 3 structure;
 - 4 a referral cache configured to store referral information; and
 - 5 computer instructions configured to translate a domain name into DNS
 - 6 information by examining the answer cache and, responsive to the results
 - 7 of examining the answer cache, examining the referral cache.
- 1 2. (Original) The caching server of claim 1, wherein the flat data structure is a hash table.
- 1 3. (Original) The caching server of claim 1, wherein the flat data structure includes
 - 2 pointers to a tree data structure.
- 1 4. (Original) The caching server of claim 1, wherein the flat data structure includes
 - 2 pointers to a tree data structure, and the tree data structure is configured to store
 - 3 answer information and referral information.
- 1 5. (Original) The caching server of claim 1, wherein the flat data structure includes
 - 2 pointers to a tree data structure, and the tree data structure is included in the
 - 3 referral cache.
- 1 6. (Original) The caching server of claim 1, wherein the caching server is also an
 - 2 authoritative server.

1 7. (Original) The caching server of claim 1, wherein the caching server is also a web
2 server.

1 8. (Original) The caching server of claim 1, wherein the referral cache is further
2 configured to store the referral information in a hierarchical data structure.

1 9. (Original) The caching server of claim 1, wherein the DNS information includes an IP
2 address.

1 10. (Original) The caching server of claim 1, wherein the DNS information includes an
2 MX record.

1 11. (Original) A computer readable medium having stored thereupon computer code
2 configured to determine DNS information associated with a domain name, the
3 computer code comprising:
4 a code segment configured to receive a request for the DNS information
5 corresponding to a domain name;
6 a code segment configured to examine a first cache to find the DNS information,
7 the first cache including a flat data structure and configured to store the
8 DNS information or a pointer to the DNS information; and
9 a code segment configured to initiate a search of a second cache if the DNS
10 information is not found by examining the first cache, the second cache
11 configured to store data referring to further locations on a computer
12 network wherein the DNS information may be found.

1 12. (Original) The computer readable medium of claim 11, wherein the DNS information
2 includes an IP address.

1 13. (Original) A computer network comprising:
2 means for receiving a request for DNS information corresponding to a domain
3 name;
4 means for examining a first cache to find the DNS information, the first cache
5 configured to store the DNS information or a pointer to the DNS
6 information; and
7 means for searching a second cache if the DNS information is not found by
8 examining the first cache, the second cache configured to store data
9 referring to further locations on the computer network wherein the DNS
10 information may be found.

1 14. (Original) The computer network of claim 13, further including means for storing
2 data in the first cache such that a time required to examine the first cache is
3 essentially constant as a function of a number of labels comprising the domain
4 name.

1 15. (Original) The computer network of claim 13, further including means for storing
2 data in the first cache such that a time required to examine the first cache is
3 essentially constant as a function of a size of the first cache.

1 16. (Original) The computer network of claim 14, wherein the DNS information includes
2 an IP address.

1 17. (Original) A computer network comprising:
2 a computing system configured to access a component of the computer network
3 using a domain name;
4 a caching server including a first data structure configured for translating the
5 domain name into DNS information, and means for examining the first
6 data structure in a time that is essentially constant as a function of a
7 number of labels comprising the domain name; and
8 a second data structure configured for translating the domain name into DNS
9 information.

1 18. (Original) The computer network of claim 17, wherein the DNS information includes
2 an IP address or an MX record.

1 19. (Original) A method of determining DNS information, the method comprising:
2 receiving a request for DNS information corresponding to a domain name;
3 examining an answer cache for answer information, the answer cache including a
4 hash table configured to store the answer information or to store a pointer
5 to the answer information; and
6 searching a tree data structure if the DNS information is not found by examining
7 the answer cache.

1 20. (Original) The method of claim 19, wherein the hash table is configured to store the
2 pointer to the answer information.

1 21. (Original) The method of claim 19, wherein the answer cache does not include a tree
2 data structure.

1 22. (Original) The method of claim 19, wherein the tree data structure is configured to
2 store referral data and is included in a referral cache.

1 23. (Original) The method of claim 19, wherein the tree data structure is configured to
2 store pointers to referral data.

1 24. (Original) The method of claim 19, wherein the DNS information includes an IP
2 address.

1 25. (Original) The method of claim 19, wherein the hash table is configured to store the
2 answer information.

1 26. (Original) A method of determining DNS information, the method comprising:
2 receiving a request for DNS information corresponding to a domain name;
3 examining an answer cache to find answer information, responsive to the received
4 request, the answer cache including a flat data structure; and
5 responsive to the examination of the answer cache, searching a referral cache.

- 1 27. (Original) The method of claim 26 wherein the flat data structure is configured to
2 store the answer information.
- 1 28. (Original) The method of claim 26, wherein the flat data structure is configured to
2 store a pointer to the answer information.
- 1 29. (Original) The method of claim 26, wherein the flat data structure is a hash table.
- 1 30. (Original) The method of claim 26, wherein a time required to examine the answer
2 cache is essentially constant as a function of a number of labels comprising the
3 domain name and essentially constant as a function of a size of the answer cache.
- 1 31. (Original) The method of claim 26, wherein the referral cache includes a hierarchical
2 data structure.
- 1 32. (Original) The method of claim 26, wherein the DNS information includes an IP
2 address.
- 1 33. (Original) A method of storing data in a cache, the method comprising:
2 requesting DNS information;
3 receiving data in response to the request;
4 classifying the response received; and
5 storing the data received in either a referral cache or an answer cache based on the
6 classification.

1 34. (Original) The method of claim 33, wherein the answer cache includes a flat data
2 structure.

1 35. (Original) The method of claim 33, wherein the answer cache includes a hash table.

1 36. (Original) The method of claim 33, wherein the response received is stored in a
2 caching server.

1 37. (Original) The method of claim 33, wherein the DNS information includes a
2 numerical address.

1 38. (Original) The method of claim 33, wherein the answer cache is configured to store
2 answer information and the referral cache is configured to store referral
3 information.

1 39. (Original) The method of claim 33, wherein the answer cache is configured to store
2 answer information and the referral cache is configured to store referral
3 information, and the answer cache and the referral cache have different data
4 structures.

1 40. (Original) A method of caching DNS information, the method comprising:
2 requesting DNS information;
3 receiving data in response to requesting DNS information;
4 classifying the response received as an answer response or a referral response;

5 storing the response received in either a referral cache or an answer cache based
6 on the classification, the answer cache including a flat data structure;
7 receiving a request for DNS information corresponding to a domain name;
8 examining the answer cache to find answer information, responsive to the
9 received request; and
10 responsive to the examination of the answer cache, searching the referral cache.

1 41. (Original) The method of claim 40, wherein the referral cache includes a hierarchical
2 data structure.

1 42. (Original) The method of claim 40, wherein the received request for DNS information
2 includes a request for an IP address.

Interview Summary

On October 3, 2006 Examiner Hetul Patel granted an Examiner Interview to Applicant's representative Steven M. Colby, Reg. No. 50,250. In that interview:

- 5 (1) The proposed combination of Singh and Fletcher in the current §103(a) rejections was discussed. In particular, both the Applicant's representative and the Examiner agreed that Singh could not properly be combined with Fletcher. This agreement was based, in part, on the teaching within Singh that it "may be impractical to apply a ... hashing technique to the host portion of an IPv4 address." This
- 10 teaches away from the proposed combination. Based on this agreement, the Examiner agreed to withdraw the current rejections under §103(a).
- (2) The Examiner suggested in the Final Office Action and in the Interview that the addition of further limitations to Claim 1 would overcome the current rejections. However, the current rejections are moot as a result of the agreement in (1) above.
- 15 The Applicant, therefore, thanks the Examiners for these suggestions and will consider them if the need to amend the claims later becomes apparent.
- (3) Claims 11, 13, 33 and 40 were discussed. The Applicant's representative argued that the cited art, which include a single cache, does not teach the limitations "a first cache ...; and ... a second cache" as recited in Claims 11 and 13, or the
- 20 limitations "either a referral cache or an answer cache" as recited in Claims 33 and 40. The Examiner suggested that he could find art that showed the single cache of the cited art could obviously be divided into two partitions and, thus,

read on the limitations of these claims. The Applicant's representative traversed this suggestion and asked the Examiner to cite art supporting his position.

(4) The Examiner and the Applicant's representative discussed the fact that a number of arguments made in the previous Response to Office Action were not addressed in the current Final Office Action, and the Applicant's representative requested that the Examiner withdraw the finality of the current Office Action and issue a new non-final office action in view of these omissions. While the Examiner admitted that some arguments were missed, the Examiner was unwilling to withdraw finality of the current Office Action. Instead, the Examiner requested this response and agreed to respond to the missed arguments in any subsequent action. The Applicant reserves the right to challenge the finality of the current Office Action on the grounds that the Examiner was clearly obligated to respond to these arguments in the current Office Action.